Halal Foods

Our Food
Food Safety and Control System
Halal foods

• Deep changes in production, ingredients and packaging enhances shelf life, food colour and texture.

• Global spread of exotic foods and rapid changing of nutritional habits makes it important to verify the lawfulness of food in compliance with the commands of the Islam.
Halal foods

• The commandments of the Qur’an, the Wholy Book, and religious ethics permit Muslims to consume only halal food.
`Muslims are allowed to eat food prepared by people who are of other beliefs (5:5) and Muslim food is permitted to be eaten by them, on condition that these foods are pure and permitted foods. They should not be excluded from diet.` (5:88).

This permits an interchange and living together of Muslims with other groups all over the world. This turns global trade possible.

Precautionary considerations:

`Do not eat unless Allah's name has been taken and this (not taking Allah's name) practice is transgression` (6:121)

Unless there is certainty that the Ahlul-kitaab takes the name of God when slaughtering an animal, only then the meat will be permissible.
### Haram foods

<table>
<thead>
<tr>
<th>Gelatine</th>
<th>Frogs and snails</th>
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<tbody>
<tr>
<td>Pork and its derivates</td>
<td>Intoxicants and harmful substances</td>
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<tr>
<td>Meat of dogs</td>
<td>Blood</td>
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<tr>
<td>Birds of prey</td>
<td>Animal fat in baking</td>
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#### Animals that died from

<table>
<thead>
<tr>
<th>A violent blow</th>
<th>Carrion</th>
</tr>
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<tbody>
<tr>
<td>A fall</td>
<td>Being savaged by a wild animal</td>
</tr>
<tr>
<td>Being gored</td>
<td>Exceptions: that which makes it lawful</td>
</tr>
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</table>
Haram foods

- Any product or by-product which contains any one or more of haram products in however minute quantity, whether as an ingredient or sub-ingredient or as a processing aid or as a releasing agent or as a glazing agent or as an additive or as a colour or in any other form, is haram.
Halal foods

Milk (Cows, sheep and goats)
Honey
Eggs
Fish
Edible plants (including sea plants) not intoxicant
Fresh or frozen vegetables
Fresh or dried fruits
Nuts like peanuts, cashew nuts, hazel nuts, walnuts
Grains such as wheat, rice, rye, barley, oats
Condiments such as cardamom, cloves, sage leaves, chilli, curcumin
Vinegar, produced from alcohol: Fermentation is only permitted when as final product vinegar is wanted. A rest of 0,5% alcohol is permitted.
Mushbooh

**SHUBHAH (Mushbooh):** 'Suspected'

- If one does not know the Halal or haram status of a particular food or drink, such a food or drink is doubtful. A practising Muslim prevents himself from consuming doubtful things.
### Haram ingredients

<table>
<thead>
<tr>
<th>Alcohol</th>
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<tr>
<td>Animal fat</td>
<td>Cocaine</td>
<td>Kosher gelatin</td>
<td>Snakes</td>
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<td>Alcoholic beverages</td>
<td>Cocaine</td>
<td>L-cysteine (if from</td>
<td>Tallow</td>
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<td>human hair)</td>
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<td>Animal shortening</td>
<td>Codeine</td>
<td>Monkey</td>
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<td>Bacon (porc)</td>
<td>Collagen (pork)</td>
<td>Pepsine (hog)</td>
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<tr>
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<td>Fermented malt</td>
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<td>Carmin E120</td>
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<td>Rennet</td>
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<tr>
<td>Carnivorous animal</td>
<td>Lipase (animal</td>
<td>Sodium nitrite E250</td>
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<tr>
<td>(Lion, tiger, cheetah, Dog, cat)</td>
<td>Origine)</td>
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Emulsifier

- Use of animal based glycerine as a coating for raisins or as a flower improver and widespread use of complicated emulsifier systems make it necessary to look inside of the nomenclature of these ingredients.
Emulsifier

• An emulsifier is a molecule consisting of a hydrophilic and a hydrophobic (lipophilic) part.

• The hydrophobic part of the emulsifier may consist of a fatty acid. The hydrophilic part of the emulsifier may consist of glycerol, possibly esterified with acetic acid, lactic acid, tartaric acid or citric acid.
The raw materials of emulsifiers are:

Soybean oil, rape seed oil, and palm oil, animal fats (lard) and glycerol, organic acids such as fatty acids and lactic, citric, acetic and tartaric acids, sorbitol and propylene glycol.
Nomenclature of Emulsifier

Monoglycerides

Singly substituted derivatives do not usually include the prefix ‘mono’. This term is used only when required to prevent ambiguity. The absence of a suitable prefix implies 'mono’, e.g. Glyceril stearate.

The term ‘Glyceride’ has been utilized to describe a monoglyceride
Monoglyceride

Glycerol

Fatty Acid

Glyceril Stearate

Glyceryl monostearate
Monostearate
Diglyceride

GLYCEROL

FATTY ACID
FATTY ACID
Triglyceride

- Fatty Acid
- Glycerol
- Fatty Acid
- Fatty Acid
Emulsifier

• Mixtures of mono-, di- and triglycerides are referred to as ‘Glycerides’. Triglycerides are assigned specific nomenclature, e.g. Tristearin.

• Multiple substitution is routinely described with the appropriate prefix such as ‘di-‘, ‘tri-‘ or ‘tetra-‘, e.g. Glyceryl distearate.
Glyceride stands for Monoglyceride

Glycerides stands for Mixture of mono-, di- and triglycerides

Specific nomenclature for triglycerides Stands for Triglycerides

e.g. Tristearin
## Straight chain fatty acids

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<td>Hexyl</td>
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<td>C12</td>
<td>Lauri</td>
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<td>C14</td>
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<td>Erucyl</td>
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Glycerol

Non-kocher to Kosher

- Glycerol was considered to be a non-kosher food, today there is an abundant amount of glycerin that is manufactured from petrochemical sources, which would then qualify to be approved as kosher. Today glycerol is made from vegetable oil.

- As a result of food technology certain ingredients, which previously were always kosher, and are now made differently have become non-kosher.
Emulsifier

• Production of ready to eat foods, margarine, milk replacer, non-dairy creamer should use kosher or halal certified emulsifier in all their products to avoid cross over from haram to halal production lines.
Emulsifier

Glycerol and polyglycerol esters

Oil and water emulsification for dietetic, bakery and confectionery and a lot of other products.

The individual components are normal constituents of the human diet, i.e. glycerol, glycerol mono-, di- and tri-fatty acid esters and individual fatty acids.
Emulsifier

**Polyglycerol ester:** the average value of $n$ is no more than 3 and $R$ is partly a fatty acid or partly hydrogen radical.
Kosher emulsifiers

**Oleates:** Kosher oleates such as Glycerol monooleate, Ethoxylated mono/di-glyceride, Glycerol monoleate.

**Stearates:** Kosher Glycerol Stearates such as Glycerol monostearate, Triglycerol monooleate, Decaglycerol tetraoleate, Glycerol monostearate.
Use of emulsifiers

Other Kosher emulsifiers

Wide range of emulsifiers with Kosher and Halal certification are being sold such as Hexaglycerol monooleate:

Margarine, coffee whitener, peanut butter, chewing gum, snack foods, pasta & cereals, Dispersing and solubilizer for salad dressings.
Emulsifier

**Kosher grade antioxidants:** Antioxidant production of kosher grade. Vitamin-based antioxidants, in particular, are a popular solution for delaying the onset of rancidity in vegetable oil.

**Kosher vitamin-based blends:** with ascorbyl palmitate and tocopherol, which provide a vitamin C and vitamin E effect respectively, and traditional blends with BHT, BHA, TBHQ and propyl gallate are available.

Rosemary Extract meets the growing desire among some manufacturers to opt for natural solutions.
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Halal foods

Three most important rules of Halal food:

1. Meat must be slaughtered in a particular way. Zibah
2. Only certain animal products are allowed.
3. Technological processing, like processing aids, cleaning materials and equipment used in production must be free from prohibited food traces.

The Islamic dietary laws which rule the production of foods is a religious matter which can be handled only by a Muslim expert.
R ritual slaughter

Zibah

- Animals should be slaughtered according to Islam ritual.
- Exceptions: animals shot during hunting and regulations for wild life (5:5)

Ritual slaughter
- Licensed Muslim slaughterer should slaughter invocating the name of Allah
- The animal must be alive and healthy at the moment of slaughter
- Animal skin or fur or feathers must be clean prior to slaughter, free of faeces, mud or other unhygienic substances
- Cut the throat, jugular vein, carotid artery and gullet with one stroke without damage of the spinal cord
- Stunning is not permitted
- Flowing blood drain out by natural convulsion
Mechanical slaughter

- Mufti Ebrahim Desai, Darul Ifta, Madrasah In'aamiyyah, Camperdown, South Africa

- Mechanical transportation but manual slaughter: Chickens are transported to the place of slaughter through a conveyer belt and are manually slaughtered. This procedure is unanimously permissible and recommended.

- Mechanical transportation and slaughter: Chickens are transported by means of the conveyer belt to the mechanical slaughter blade. Once the mechanical plant comes into operation, the blade also comes into operation and cuts the chicken. This procedure is not permissible.
Stunning

- **Germany**: Religious slaughter without pre-stunning is allowed. (BVG 15.02.2002)
- **EU**: Religious slaughter without pre-stunning is allowed. (93/119/EC)
- **Egypt**: University Al Azhar in Cairo has accepted stunning with electro shocks. Not according to the opinion of the majority of Muslims which consider such slaughter as Haram.
- **UK**: Exception for Islamic slaughter without stunning is provided in UK regulation.

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**Mechanical methods of stunning**

**Mainstream slaughter**

**Captive bolt:** Widely used for all farm animals and rabbits. Gun powder (cartridge), compressed air and spring under tension drive bolts through the skull of animals.

**Concussion stunning:** A mechanically operated instrument delivers a blow to the brain and concusses the brain. Used for cattle, sheep, calves, rabbits.

**Free bullets:** Used for animals difficult to handle such as wild pigs, bison, deer, horses or in emergencies.
**Gas stunning**

**Mainstream slaughter**

**Carbon dioxide:** Carbon dioxide is used to stun pigs in the UK and other EU countries. Pigs exposed to 90% CO2 die within approx. 5 minutes, but times vary and can be significantly longer.

**Carbon dioxide and argon:** This gas mixture is used for stun/kill chickens and turkeys.
Electrical stunning
Mainstream slaughter

Head-only stunning: An electric current is applied to the head which is supposed to cause temporary loss of consciousness.

Cardiac arrest stunning: An electric current is either sent through the head and body at the same time to span the brain and heart or is sent though the head first and then across the chest.

Waterbath stunning: Used for poultry. Birds are shackled upside down on a moving conveyor which carries them to an electrified water bath into which their heads are supposed to be immersed.
**Stunning**

Islam interpretation

**Gassing strangulation:** Are considered as cruel and unlawful in Islam, therefore chemical gassing should not be used as a stunning method.

**Concussion:** Animals that die from a violent blow are haram.

**Captive bolt pistol, water bath:** Animals that die from a fall - some Muslims have interpreted this command to mean that if an animal has died from concussion or drowning (as a cow falling in a well would be killed by drowning) it is forbidden.
Some say electrical stunning is legal so long as the animal is still alive when slaughtered and so long as the motive is to ease suffering and quicken the process.

Others say it is forbidden because the shock can cause pain; quickens decay of the flesh; causes haemorrhaging so diseases can't be checked for and may kill the animal outright.

Van de Wals and Warrinton: All stunning methods trigger a massive secretion of epinephrine.
New Zealand and Australia

New Zealand has developed an electrical stunning apparatus that meets Muslim standard. Head-only electric stunning prior to Muslim slaughter is used in almost all sheep slaughter plants in New Zealand and Australia.
Electrical stunning
Islam experts interpretation

Dr Ahmad Sakr, expert on Halal certification in USA:

He says it is not Halal because of the effect electric shock has on blood drainage. Using electric shock means that all of the animal's blood does not leave its body, because electric shock affects the central nervous system.
Sheikh Aboul Yusr Abdin: Many Muslims do believe (and many do not!) that stunning is permitted so long as the animal is killed by cutting the throat. It is more acceptable to stun cows to speed up throughput but much less so to stun smaller animals which are easier to handle.

Dr Abdel Aziz El Khayat: Most Muslims allow the captive bolt.

Australia, New Zealand and Ireland: Non-penetrating concussion stunning prior to slaughter has received approval from some Muslim authorities.
The Talmud

Detailed anatomical information what is to be done during slaughter and the subsequent post-mortem inspection.

The Jewish religious codes require that allowed animals be slaughtered by a specially trained Jewish male called "shochet" using a special knife, called the "chalef".

While the Muslims allow any believing Muslim man or women, to slaughter allowed animals.
Animal slaughter in abattoir

- Constant supervision of a Halal certifier.

- The premises, machinery and equipment must be cleansed according to Islamic Sharia before any production takes place.

- The Slaughterer must be a mature and pious Muslim

- Only acceptable live animals and birds can be slaughtered.
Animal slaughter in abattoir

- The slaughter must be done manually using a stainless steel knife.
- Facilities must be available for rinsing the knife after each kill.
- The slaughterer must sever the respiratory tract, oesophagus and jugular vein.
- The animal must be completely dead before skinning takes place.
- Only Halal animals and birds are Halal Slaughtered.
Evaluation of religious slaughter

Stressfulness of restraint methods,

Pain perception during the incision

Latency of onset of complete insensibility.
Restraint

Europe

The casting pen inverts cattle onto their backs, being more stressful than upright restraint devices. Cattle resist inversion and twist their necks in an attempt to right their heads.
**Restraint devices**

**Weinberg casting pen:** It is very stressful.

**Facomia pen:** Less stressful than Weinberg pen but upright restraint would be better.

**US:** Poorly designed upright restraint boxes apply excessive pressure to the thoracic and neck areas of cattle.
Upright restraint device according to Grandin
Loss of consciousness after incision

Sheep and goats: 2 to 15 seconds

Cattle: immediately to 30 seconds. Calm cattle will usually collapse within 10 to 15 seconds.
Upright restraint: Special device by Grandin

Good upright restraint equipment is available for low stress, comfortable restraint of sheep, calves and cattle.

Excessive bending of the neck should be avoided. For that, the bovine's forehead should be parallel to the floor.
Welfare aspects of slaughter

Many welfare concerns in Europe are centred on restraint, driven by their concerns about forceful immobilisation and clamping of cattle.

A failure rate of 3 to 5 in captive bolt stunning requiring a second shot could be avoided with proper head restrain devices.
Animal slaughter research

University of Hanover:

Germany Professor Schultz and Dr. Hazim used Electroencephalograph (EEG) and electrocardiogram (ECG) to compare the pain caused by Islamic slaughter and western method using captive bolt stunning.
**Industrial habits**

**Slaughter by machines:** Several supermarket chains have sold chicken slaughtered by machines with Halal labelling. Consumers do not agree with that.

**Product change on line:** Changing between different products of the same category with meat and vegetarian products on a same line is practised in actual food industry.

However, changing from meat product to a vegetarian one, haram meat and animal fat can contaminate this product.
Industrial habits

Cross-over: Halal food should be free of unlawful ingredients, or contamination, even in low level. Cross-over should not be tolerated.

False claims: A claim on vegetarian food of a fast food chain was not sustained as the company had to admit of having used beef extract on their French fries and hash browns.

Halal is a distinct set of dietary rules which should be recognized by all the businesses and global food industry and must be clearly separated from vegetarian diet, vegan diet, organic food and Hindu food.
Organizations and Companies
Certifying Muslim food

**World Halal Food Council:** The Council Congress meeting on 2001 was looking forward to greater cooperation among Halal certifying organizations.

**Halal certifying organizations:**
- **IFANCA** (Islamic Food and Nutrition Council of America) (USA)
- **ISNA-Canada** (Islamic Society of North America-Canada)
- **The Muslim Food Board (UK)** It is one company which investigates and certifies foods.
The Codex Alimentarius Commission accepts that there may be minor differences in opinion in the interpretation of lawful and unlawful animals and in the slaughter act, according to the different Islamic Schools of Thought.
Codex Alimentarius
Haram animal foods

- Pigs and boars.
- Dogs, snakes and monkeys.
- Carnivorous animals with claws and tusks such as lions, tigers, bears, and similar animals.
- Birds of prey with talons, such as eagle, vulture and similar animals.
- Pests like rats, centipedes, scorpions and similar animals.
- Animals which according to Islamic laws should not be killed such as ants, bees and woodpecker.
- Repulsive animals such as lice, flies, worms and similar animals.
- Animals which can live on land and in water such as frogs, crocodiles and similar animals.
- Mules and similar animals.
- All poisonous and dangerous animals of the sea.
- All animals which have been slaughtered disregarding the Islamic laws.
- Blood.
Haram vegetable foods: All poisonous and dangerous plants are considered as haram, unless the poison or the danger is being discarded during processing.

Haram beverages: All alcoholic beverages are haram as well all forms of poisoning and dangerous beverages.
Alcohol

The industry of beverages could do a lot reducing their output of alcoholic products in favour of non-alcoholics. The Qur`an, the Holy Book for Muslims opens the way to it:

**Gradual prohibition of alcohol:**
When Islam was first established over fourteen centuries ago alcohol was not immediately eradicated.

Acknowledged the benefits for example its medical applications, but pointed out that its harms out-weighed those benefits by far. (2:220)

Next, it forbade believers from praying whilst under the influence of alcohol, thus making it clear that spirituality and drunkenness don't mix. (4:43)

Finally it was altogether prohibited as the handiwork of the devil. (5:91)
Alcohol labelling

In Germany 1.2% alcohol is permitted to be added to food without declaration. Declaration as “alcohol-free“ is admitted with a certain level of alcohol, such as malt beer which has 0.3% to 1% of alcohol.

Alcohol can be labeled as ethylalcohol, ethanol, spirit, C2H5OH and some author cite also glycerin (glycerol) as well as Mono- and Diglycerides as alcohols.
Foods with hidden alcohol

**Confectionery:** Cakes, bakeries and confectionery as well as ice cream, jams, desserts, tiramisu (Tuscan Trifle), sabbaione contains often alcohol in form of brandy, marsala, rum, sherry, cherry brandy, amaretto, vine, just to mention some of the spirits used.

**Soups:** such as chicken cream soup, chanterelle soup, oxtail soup.

**Sauces:** like barbecue, cocktail sauce, tomato sauce.

**Aroma:** Vanilla essence.

**Soft cheese:** different types.
Cheese slices and block cheeses contain animal rennet and enzymes. Microbial enzymes instead of these haram ingredients could be used. However the microbial enzymes are often produced by transgene microbes.
Other problems with halal food

Dutch chicken with animal protein hydrolysates:

This is not allowed as the consumer does not want to have other animal proteins than chicken in frozen poultry.
Other problems with halal food

Campylobacter

**Chicken:** Campylobacter is a food borne bacteria which is present in free living birds and nowadays in 30 to 70% in broiler chicken herds and laying hens.

**Milk:** Contamination of milk results from an infection of the udder or contact with manure of herds where campylobacter jejuni has developed a specific resistance to this environment.
Other problems with halal food

Campylobacter

**Surface water:** Untreated drinking water is a source of infection of cattle and humans.

**Bovine meat:** The bovine meat from abattoir have very low levels of Campylobacter bacteria. This seems to be due to drying and refrigeration techniques from these plants.

**Other infection sources:** Raw sea foods and contact with pets.

**Resistance to antibiotics:** High resistance of Campylobacter jejuni and Campylobacter coli to erytromicine and fluorochinolone are increasing worldwide.
Avoiding Campylobacter infections

Cross infection in industry and in kitchen must be avoided.

Thorough heating of chicken meat is very important (Frying 3 minutes each side, followed by another 5 to 6 minutes high temperature holding time).

Infectious materials are chicken, milk, water and direct contact with feces. Infection in animals are often. Asymptomatic Campylobacter fetus subspecies fetus can lead to miscarriage.
Vinegar or Apple Vinegar (In UK fermentation of apple juice = Haram)

Distilled Vinegar/Spirit Vinegar/Grain Vinegar (Halal)

Malt Vinegar (Halal)

Wine Vinegar (haram)

Balsamic Vinegar (haram)
Tartaric acid

Tartaric Acid and cream of tartar: It occurs naturally in grapes. It is used in grape and lime flavoured beverages and jellies and baking powder as an acidifier.

Cream of Tatar: It is the acid potassium salt of tartaric acid. It is used as a chemical leavening to release carbon dioxide, which produces loaf volume in bake products.

Tartaric acid and Cream of Tartar in USA is made from not fermented crushed grapes according to Tartaric Acid manufacturer. So both are Halal since it is made from not fermented crushed grape.

Tartaric acid from leftover from wine production is haram.
Natural food colours

Natural food colours: Halal
Anatto, bixin, norbixin E160b
Antocyanins E163
Beet root juice and betanin E162
Canthaxanthin E161g
Caramel 150a
Beta-carotene 160a (Halal only
Vegetable oil is used as a carrier)
Paprika powder
Turmeric powder

Haram if extracted with alcohol
Paprika oleoresin
Turmeric oleoresin

Haram: Cochineal and carminic acid E120 (They are not considered as Halal because all insects are haram)

www.ourfood.com
Karl Heinz Wilm
All the synthetic colourants which are certified by FDA and bear an E number are not automatically Halal. They have to be certified as such. The FDA allows the following solvents for dispersion and carrying agents:

- Glycerin (haram, if it is from pork fat)
- Propylene Glycol (Halal)
- Dextrose (Halal)
- Sucrose (Halal)
- Vegetable Oil (Halal)
- Water (Halal)
Coloured Cherries

Colored cherries

The cherries are artificially coloured with carmine E120 which is haram. If the cherries are coloured with other colours there is a chance to contain pork glycerin as a solvent. Coloured cherries have to be Halal or Kosher certified.
Symbols for Halal and Kosher

Symbols for Halal: If the product is Halal certified it has a Halal symbol which is a "H" under Triangle on the product.

Symbol for kosher foods: The symbol for kosher is a U or UD, Circler K, Triangle K, CRC, COR, V, kuf K which appears on the food product.
New techniques for ingredients

- Encapsulation
- Micro fluidization combining high pressure homogenization and heat denaturization
- Liposomes which is a lipid (fat) cavity
- Coacervation where two liquids mixed together through colloid
- Milk fat coated microcapsule
- Matrix material for coating
- Lecithin vesicles
- Timely release capsules
- Fluid bed
- Spray drying
- Use of modified food starch for coating.

Halal material used for capsulation: Arabic gum, cellulose gum, modified starch, pure milk fat and other halal colloidal material may be used.

www.ourfood.com Karl Heinz Wilm
A new sugar replacer called isomalt is used in both foods and pharmaceutical products. It provides low calorie. It is manufactured by Palatinit Mannheim, Germany. It is made with beet sugar without the use of bone charcoal.

This product is Halal certified by Islamisches Zentrum Aachen. No alcohol or pork by-products are used in its manufacturing process.

This is an example that modern research, technology, and food innovations can be done in accordance to Islamic beliefs.
Conclusions

All products should have a list of ingredients on their labels.

Meat products from the supermarket should be bought only if they have the name of the Halal certifying company on their label or the meat comes from a halal meat store nearby.

Purely vegetarian or vegan diet at a fast food place should be under special control and free from cross contamination with other foods.

Global food industry should consider the Islamic food laws when developing new products.